Journal for the Theory of Social Behaviour 29:2
0021–8308

Towards a Paradigm for Research on Social Representations

MARTIN W. BAUER & GEORGE GASKELL

In this paper we develop a paradigm for research on social representations based on ideas that informed a study of modern biotechnology and the public (Durant, Bauer, Gaskell, 1998). Researching what the public thinks about such a new technology might be approached within a traditional attitudinal, risk perception, or audience reception framework. However, drawing inspiration from 'La psychanalyse, son image et son public' (Moscovici, 1961) we opted for the approach of social representations theory. We were persuaded that the conceptual richness of this theory was better suited to characterising the evolution of content, structure and functions of the voices and images of public concern, in response to the challenging developments in genetic engineering and modern biotechnology. Here we step back from our inquiry into biotechnology among European publics and reflect on the lessons for research on social representations, a phenomenon and concept of central concern to social psychology.

Having decided to work within the framework of social representations, the contemporary researcher finds relatively little guidance on the implications of the theory for the design of empirical research. Breakwell & Canter (1993) note that almost every method known to the social sciences has been used in the study of social representations. While methodological pluralism may be virtuous, when a theory apparently embraces a range of approaches from ethnography to experimentation, of data sources from pictures to attitude scales, and analytic procedures from qualitative interpretation to multi-dimensional scaling, without an explicit rationale, virtue looks more like an absence of conceptual clarity. The methodologically more coherent proposals of Doise, Clemence & Lorenzi-Cioldi (1993) to operationalise aspects of social representation in terms of multivariate statistical procedures, has the advantage of opening common ground with traditional attitude research, but in so doing may constrain the development of social representations theory by limiting it to the interpretation of quantitative analysis. If research on social representations is to progress and live up to the promise of the theory, what is required is an elaboration and clarification of the

key conceptual distinctions, and a discussion of their implications for the conduct of research; this is what we attempt in this paper.

The paper starts with an interpretation of a classical study in the tradition of social representations followed by a discussion of how this approach leads to a different framing of research areas, such as on the 'public understanding of science'. We then discuss the problem of representation and the 'iconoclastic suspicion', leading to a definition of elements of an ideal type study. Seven implications for research on social representations are elaborated. These implications serve as a guide for the design and evaluation of research in this theoretical tradition.

COMMON SENSE AS RESISTANCE: 'LA PSYCHANALYSE-SON IMAGE ET SON PUBLIC' (1961)

Moscovici's (1961 and 1976) study[1] on the reception of psychoanalytic ideas in France provides a general framework of concepts and methods relevant to understanding the reception of other new fields of knowledge. The study describes how three segments of French society in the 1950s responded to the challenge of psychoanalytic ideas. The urban-liberal, the Catholic, and the communist milieus cultivated different representations of psychoanalysis. The study combines social survey data and media analysis. The processes, the contents, and the consequences of communications are systematically compared across the three social segments. In the different social segments the form and contents of communication differ leading to varied representations of psychoanalysis.

Propaganda is the typical communication process of the communist milieu, a group with a strong identity defined by their affiliation to the Party. The discussion of psychoanalysis is ordered systematically within the dichotomy of 'friend or foe', emphasising incompatibility and conflict. The press coverage is didactic, set in the context of national and international class conflict. The intention of the communication is to generate negative *stereotypes* of psychoanalysis in order to exclude it from the communist milieu. Propaganda constructs outright rejection by anchoring psychoanalysis in images of class enemies. Psychoanalysis is North American psychology, the United States is imperialistic, therefore psychoanalysis is an imperialistic tool and must be rejected. This milieu is highly resistant to psychoanalysis.

Propagation is the typical form of communication within the Catholic milieu, another well defined social group. Communication is again didactic and well ordered. But here, the intention of the communication is to make limited concessions to a subgroup of Catholics with affinities to psychoanalysis, and simultaneously, to set limits to the acceptance within the established orthodoxy of the Church. The process maintains control of the reception of psychoanalytic

ideas by shaping *attitudes* rather than stereotypes. Propagation attempts a partial assimilation of psychoanalysis by anchoring it in the traditional concepts and practices of the confessional, while rejecting its theory of sexuality. In this milieu an intermediate level of resistance to psychoanalysis prevails.

Diffusion, typical of the urban-liberal milieu, occurs in a group without a strong identity and structure. Communication is audience led, merely intended to inform people about new opportunities, and the themes are casually ordered including irony and humor. The message informs *opinions* without carrying implications for particular actions. In this group there is little resistance to psychoanalysis, hardly surprising because it is sociologically located mainly in this milieu.

The master stroke of this analysis is the comparative integration of four related characteristics of communication systems: the contents of communication [anchors and objectifications], the typified process of communication [propaganda, propagation and diffusion], the consequences of communication [stereotype, attitude and opinion], and the segmentation of social groups [milieus]. The combination of these characteristics constitutes both a description and an operationalisation of a social representation.

In these communicataion systems psychoanalytic ideas circulated and transformed. Psychoanalysis acquires multiple representations in response to the different challenges it poses to the historical projects of the three milieus. In other words different representations are related to differential resistance: the challenge of the 'new' is anchored into existing images and traditions, thereby gaining particular forms and contents. Underlying the anchoring and objectification of psychoanalysis are, to a greater or lesser extent, anxieties about the symbolic autonomy of the social group whose identity is rooted in a stock of knowledge and practices that are to be preserved.[2] In this way different representations can be seen as reflecting the resistance of common senses to new knowledge.

REPRESENTATIONS OF SCIENCE

A number of studies of social representations have been concerned with the circulation of expert knowledge and its integration into the common sense of different publics (e.g. Ackermann & Dulong, 1971; Farr, 1993). The circulation of knowledge from a core of experts or 'virtuosi' into the wider mass public involves the transformation of abstract and conceptual ideas into more accessible images, metaphors, concrete objects and habitual practices.

How expert knowledge is circulated is influenced by the views of experts (insiders) on the virtues and vices of sharing such knowledge with the public (outsiders). In his study of the development of a 'scientific fact' Fleck (1935, 139) typifies two relationships between insiders and outsiders, which vary with the

power of the insider and the significance attributed to the outsider. The orthodox-elitist form is modeled on traditional religion. It maintains absolute autonomy for insiders, fosters dogmatism and secrecy, and resists challenges from outsiders. The democratic form is more sensitive to concerns from outside. Fleck's claim that the latter relationship is characteristic of modern science cannot be taken a-priori. This relationship is both a normative and empirical issue. Indeed, the current state of affairs between science and its public is hotly debated (Wynne, 1995; Jurdant, 1993).

Related to Fleck's distinction are two conceptions of the transformation of knowledge, as it moves from the experts to the public; the 'deficit model' and the idea of 'creative reconstruction'. The 'deficit model' of public understanding of science investigates the biased deterioration of scientific knowledge into popular science with 'iconoclastic' fervor. The associated HIFI [high fidelity] model of communication has inspired numerous studies on the gaps between the intentions of the scientific sender, the media message, and resulting literacy of the audience (see Dornan, 1990, or Hilgartner, 1990, for critical reviews). Gaps and deficits are analyzed as ignorance or misunderstandings among the lay public, and go hand in hand with calls for more media activity and media control by the scientific elites. This is strategic communication, its knowledge interest is the efficient and effective control over the audience in line with the objectives of the scientific establishment.

The alternative to the deficit model sees the transformation of knowledge from experts to the wider public as a process of creative reconstruction (Irwin & Wynne, 1996). The resulting representation is the response of common sense to the challenge posed by the experts. In an essay on science in the media, Roqueplo (1974, 123) compares the ambitions of science popularisation with the achievements. He concludes, that knowledge is not actually shared as this would necessitate expects sharing the power of science with outsiders, what emerges are 'social representations' of science. Thus popular science is the 'window of science' for the wider culture. Social representations of science mediate between the science world and the life world, bridging the 'gap' by transforming expert knowledge into hybrid forms drawing on both science and the life world.

In everyday life scientific knowledge often poses a challenge to understanding, how can the abstract and conceptual be rendered meaningful among outsiders? Among those not directly involved in science this is achieved through associations, metaphors, images and objectifications. While these re-presentations of scientific ideas are frequently an irritation to the experts, their collection, description and functional analysis is one of the potential contributions of social representation theory. In this sense the study of social representations shifts the focus of comparison from science versus the public to comparisons among different publics of science. Consider the following analogy: throwing a stone (genetic research) into a pond (public) creates ripples. We are more interested in the

ripples (representations of genetics) and what they tell us about the invisible depths of the pond (local concerns and sensitivities), than the stone itself (theories of genetics). Equally, we assume that the stone throwers (geneticists and biotechnologists), while starting the ripples, cannot control them. The very unpredictability of common sense is the problematic of social representations theory.

In 1981 Moscovici contrasted reified and consensual universes, but we agree with Bangerter (1995) that it is not appropriate to identify science with reified knowledge, and everyday life with consensual knowledge. Science and everyday life are spheres of knowledge production; reification and consensual processes play a part in both spheres. On the one hand, it would be uncomfortable to live in a common sense world without objects, where the nature of a table had to be repeatedly reestablished before sitting down to dinner. And on the other hand science is full of debates about the nature of abstract concepts and the meaning of empirical data (see Pickering, 1992). The relative prevalence and functions of reification and consensual processes in either sphere is an empirical matter.

ON REPRESENTATION

While there has been an extended debate on the nature of 'representations' in general, and on '*social* representations' in particular (Moscovici, 1984; Harre, 1984; Farr, 1987; Allansdottir, Jovchelovitch & Stathopoulou, 1993; Billig, 1993; Wagner, 1996; Flick, 1998; Duveen, 1998) we limit ourselves to clarifying our usage of the term. We concur with the position recently outlined by Jovchelovitch (1996); at the crossroads between the individual and society, representations are a space in-between, a medium linking objects, subjects and activities. Representations are embodied in communication *and* in individual minds, shared in a way similar to language. In this sense 'shared' refers to Harre's (1984) definition of a collective plurality where all in the group have overlapping parts of the whole, but the whole is only comprehended by reference to the collective.

Representation is an activity [the process of representing] with an observable outcome [an elaborated idea, a designed object, a representation]. We may observe multiple forms of an original idea in different pragmatic contexts. Furthermore, representation is simultaneously an individual and collective activity of the cultivation of common sense; the elaboration, circulation and reception of representations.

Formally, a representation can be characterised as the relation between three elements:

- subjects[3] or carriers of the representation (S).
- an object that is represented, a concrete entity or abstract idea (O)

- a project, or pragmatic context, of a social group within which the representation makes sense (P).

Representations have a triple genitive; representations of the subjects, representations of the object, and representations of the project. Subjects, object and project form a system of mutual constitution; the third mediating between the other two.

This structure is essential if we want to understand how in the object, the project of the subjects is represented; or how in the subjects the object appears in relation to a project; or how the project links the subjects and the object.

Things and ideas may be represented when they are absent, temporally or geographically. Absent things or ideas may be hidden from (in)sight [object constancy], or they may have existed in the past [memory], or they may be possible futures [expectations or anticipations]. These basic functions of representation, i.e. objectification, imagination, memory and anticipation, are not mere epiphenomena of human activity. They constitute the internal environment which in conjunction with the external environment of 'brute facts' (Wagner, 1998) empower and constrain individual and collective activity.

THE 'ICONOCLASTIC SUSPICION'

The nature of representations has often prompted a sense of unease in the social sciences; a worry that 'fiction' is blurring the 'facts'. To illustrate this point we draw on the theological and historical writings which warned about the dangers of false images of the 'ultimate being' in the world, or what one may call the 'iconoclastic suspicion' (Exodus 20,4; Crone, 1980; Eire, 1986; Halbertal & Margalit, 1992). Iconoclasm, here used metaphorically and in a secular sense, separates fact from fiction in two versions. According to the strong or radical version all representations are misleading. This leads to a fundamental suspicion [Fundamentalverdacht] of all representational activity, either in terms of the Marxist 'false consciousness', the negative critique of traditional theory (Horkheimer & Adorno, 1968), or in the post-modern rejection of privileged meta-narratives (Lyotard, 1994). These suspicions introduce a productive paradox: even iconoclasm relies on memories of its own history to maintain the moment of suspicion for the future, which, applied to itself, undermines the very tradition. However, for our purposes the weak version, which operates with the distinction between adequate and inadequate representations, is a more relevant and sustainable position. It opens a space for acknowledging the possibility of understanding 'positive' knowledge in relation to its contextual functions, without foreclosing the capacity to criticise it.

The awareness of representations as distinct from the 'object per se' is a product of reflexivity, and of course a precondition of the iconoclastic suspicion.

Reflexive consciousness allows us to talk about our representations, to distinguish the signifier and the signified, to distance ourselves from them, to polemicise against them and to change them. However, reflexivity is a distributed activity both in time and place. For good reason we do not reflect on representaions permanently in everyday life; some people do so more often than others, and some are professionally expected to do so as 'intellectuals'. For most part we act in trust, as if our representations are 'reality' and are doing their job well.

Hence, the debate about 'representation of X' or 'representation is X' may be a false distinction (see Wagner, 1996), as it is not simply a matter of either/or, but rather which form and in what circumstances. Sometimes representations 'are X', in the sense of fusing the world and our experience of it; sometimes representations 'are of X', when we, in distancing ourselves, reflect upon them. Consider a football match; for the committed supporters of the two teams, two different games are being played (see Hastorf & Cantril, 1954), the respective representations are 'their reality'. However, a journalist may report both on the match and reflect on the representations of the opposing fans in the stadium: indeed, he or she may go on to reflect on the state of football in general. Furthermore it is possible that after the match, fans of both teams may meet and engage in the same reflexive activity as the journalist, arguing with each other about their different realities.

In this sense, reflection presupposes the experience of alternatives, for example conflicting representations of an issue of common concern. Imagine a disputed penalty in the 89th minute of the football game. Here the fans of each team immediately face a contrary perspective of the game; claims and counterclaims are exchanged. The experience of an 'other' whose perspective on the world is different, constitutes a necessary, but not sufficient condition of reflexivity. The contrasting perspectives relativise and call into question the taken for granted. The different perspective of the other presents a challenge, it may be resisted, but at minimum the other's presence and contrary experience must be acknowledged. The 'other' is, however, not necessarily a problem for the subject, but may help to structure and stabilize the subject's experience of the world within a constant flux of events. The other may appear as a challenge [the problematic other bringing a different representation to the scene], or as a partner [the unproblematic other who shares our representation]. It is through the contrast of divergent perspectives that we become aware of representations, particularly when the contrast challenges our presumed reality and is resisted. We stabilize representations of ourselves and of things in concert with others, with a shared pool of categorical perceptions, symbols and conventionalized and habitual behaviour patterns. But this stability is precarious, permanently open to challenge. In this sense representations are social, evolving as a result of challenges posed by others and from coping with the 'brute facts' of the world. This is not to say that representations attributed to the people in a group are identical, indeed we agree with Harre (1984) and Duveen (1998) on the importance of the distinction

between distributive and collective sharing. The 'manner of sharing' may vary and influence the stability of representations.

THE DEFINING CHARACTERISTICS OF A SOCIAL REPRESENTATION

We identify three defining features of representations. Firstly, they are cultivated in communication systems. Secondly, they have structured contents that serve various functions for the communications systems and its participants. Finally, they are embodied in different modes and mediums.

Communication Systems

Social milieus are the functional locus of representations. In social milieus, understood as communication systems, representations are elaborated, circulated and received, the process of symbolic cultivation. They are embodied in one or more of four modes: habitual behaviour, individual cognition, informal and formal communication.

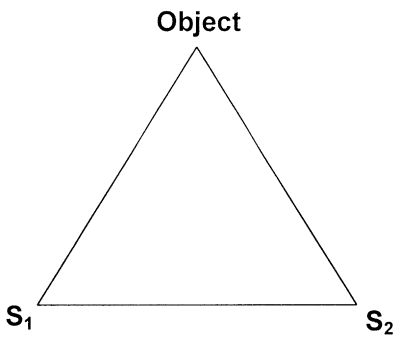

Figure 1. The Representational Triad

The minimal system involved in representation is a triad: two persons, (subject 1 and subject 2) who are concerned with an object (O) (see Figure 1). The triangle of mediation [S-O-S] is the basic unit for the elaboration of meaning. Meaning is not an individual or private affair, but always implies the 'other', concrete or imagined. While individually cognised, in form, function and content, the presence of the 'other' is always implicated based on past social experience.

To this basic triangle a time dimension, both past and future, is added to denote the implied or espoused project (P) linking the two subjects and the object. The project, akin to the experience of common fate, links S1 and S2 via mutual interests, goals and activities. Within this project the common sense

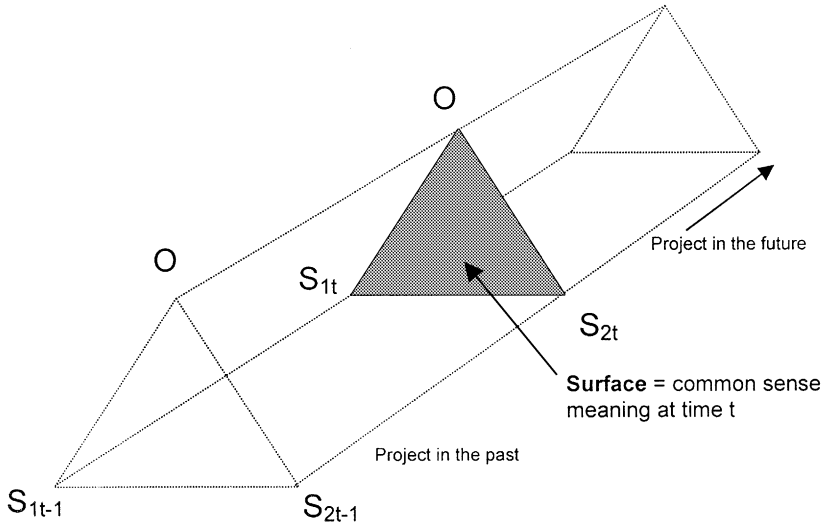

Figure 2. The 'Toblerone' Model of common sense

meaning of the object is an emergent property similar to a socialized form of the Lewinian life space (Lewin, 1952; VanElteren, 1990).

The basic unit of analysis is now (S-O-P-S) and is depicted as a 'toblerone' (see Figure 2). The elongated triangle, objectified in the shape of the famous Swiss chocolate, serves as an image to capture the triangular relations in the context of time. Hence, a representation is a time-gestalt of 'inter-objectivity'. The apexes of the triangle stand for subject 1, subject 2, and the object O in the sense of a 'brute fact', the referent. The elongation is the past and the future that is implied in the joint project P. A section through the toblerone at any particular time is a surface that denotes the common sense meaning [the representation] of that object at that time.

A final step in the extension of our formal model concerns the differentiation of social groups. Groups are not static, they develop, become larger and perhaps subdivide. Hence over time various triangles of mediation emerge and coexist to form a larger social system, characterised at different times by mutual conflict, cooperation, and indifference. This leads to the 'toblerone pack' model: O is the linking pin of different representations, their common referent or the brute fact. The surface of each triangle, a section through the toblerone pack, denotes the different common senses that prevail in different social groups at the same time. The elongation of the triangles denotes the evolution of common sense in the different groups. Furthermore we have to recognize that 'O' may change over time as a function of its own dynamics [material process], or in response to common senses [representations]. One could think of this as a pack of

toblerones, but it would be a misrepresentation. In reality, the pack would be contorted, with toblerones of different sizes, and twisted in elongation, and possibly with different numbers of toblerone at different times.

This concept of triangles of mediation bring into focus social milieus or natural groups formed around different projects. Taking our previous example, the meaning of an object (psychoanalysis) appeared in different forms in the different French milieus. In this sense common projects, we-cognitions, collective memories and actions, define a functioning social group (Tuomela, 1995). According to the theory of acting groups (Cranach, 1996 and 1998) the life world of a group has four parallel structures: the task [what is to be done?], the role structure [who is able to do what?], the communcication structure [who is thinking what and talks to whom?] which transforms the task within the role structure into action [who does what?]. While this is a strong definition of a group, and we acknowledge that representations exist in groupings where some of these structural features are still latent, it suggests that the analysis of representations should be linked functionally to the concrete context of collective activities.

The Structure and Function of Representations

There have been some important advances regarding the structure of representations. Abric and colleagues have explored the structural distinction between *core and peripheral* elements of representation in terms of commonality and stability (e.g. Abric, 1994). The analysis of free associations across groups (Pereira de Sa, 1996) and contexts (Wagner, 1997) provide a procedural clarification defining the 'figurative nucleus' of the representation of an object attributed to a social group.

Representations familiarize the unfamiliar by the related processes of *anchoring and objectifying* (Moscovici, 1984). Anchoring involves the naming and classifying of novel encounters, ideas, things or persons. It is based on an existing order of meaningful names. Objectification solidifies and makes tangible the abstract and potentially threatening new idea. Images, material exemplars, models, and verbal metaphors, as they are used in everyday life, are the basic means for understanding and grapsing of the world, and as such are empirical data in the study of social representations. Anchors and objects are not fixed once and for all, they are transitional pointers in the evolution of meaning of an aspect of the world. Take for example genetic engineering after February 1997. The term 'cloning' became both an anchor, and 'Dolly the sheep' an objectification of 'adult nucleic transfer techniques' in particular and of genetic engineereing in general. Over its thirty year history genetic engineering has thrown up many novel challenges necessitating a continuing process of cultivation of popular anchors and objectifications (Nelkin & Lindee, 1995).

There has been a vigorous discussion on the demarcation of social representations from other constructs of knowledge, many with a long pedigree (Gaskell & Fraser, 1990; Flick, 1998). How do social representations differ from ideology, myths, stereotypes, attitudes, social identities, action plans, programmes or scripts? Such definitional efforts are generally inconclusive. It seems more promising to use the distinction between structure and function, and to consider representations as comparable structures [core and periphery elements, anchors and objectifications] which may serve different functions for the activities of social groups (Cranach, 1998). These may be ideological, mythical, providing identities, enabling resistance, attitudinal, planning or scripting of intentional activity. Take Dolly the cloned sheep again, an anchor and visual objectification which served a variety of functions for different groups. For some it was an icon of the wonders of scientific progress, for others it was the beginning of the end, the arrival of Huxley's Brave New World in the form of a sacrificial lamb which calls for public demonstrations of dissent.

These functions of representations need to be empirically demonstrated relating particular contexts, contents, and projects. Take for example 'ideology'; a representation may be classified as ideological if its anchors and objectifications can be shown to contradict the project of a particular social milieu and thus to sustain a relationship of dominance (e.g. Guareschi, 1996). Mythical representations are stories of origins portraying as necessary a particular historical trajectory. Without the context and removed from time they may serve to legitimate and motivate a group's project in an adversarial context (Blumenberg, 1990; Moscovici, 1992). Attitudinal functions may be seen in contexts requiring evaluative judgments and choice. The context and the content co-determine the particular function, representations are not linked to fixed functions and may indeed have multiple functions for a group in different pragmatic contexts. Take for example the romantic image of nature which may serve various functions for environmental groups: it may define group identity and membership, it may mythically legitimize activism on behalf of environmental preservation, or merely serve the attitudinal function of evaluating genetically modified crops. In other words, the representation of nature held by a group may serve identity, mythical and attitudinal functions. While social representations research has generally emphasised structure over function, other research is beginning to define, order and reorder a catalogue of functions (Lahlou, 1998; Cranach, 1998; Thommen, Cranach & Ammann, 1992).

Modes and Mediums of Representation

Representations are embodied in, but hidden within the workings of 'modes' and 'mediums'. We use the plural 'medium' to distinguish the type of representation from the common meaning of 'media' as newspapers, radio or television.

The four modes of representation, all more or less linked to language, are habitual behaviour (Smith, 1997); individual cognition, informal communication, and formal communication. In relation to mediums of representation habitual behaviour, in many cases beneath the level of conscious monitoring, is bodily movement. Individual cognition and the two forms of communication (informal and formal) may take the mediums of words, visual images or non-linguistic sound. Bodily movement, language, visual images (DaRosa, 1998; Rose, in press) or non-linguistic sounds can be more or less standardized and formalized. The mass circulation media are characterised by highly formalised communication and distinguished by genre and style (Luckmann, 1994). By contrast every day face to face conversation is informal. Together with bodily movement and individual cognition these constitute four modes of representation which interact with each other in stabilizing or changing social representations.

Let us illustrate modes and mediums with Jodelet's (1993) study of mental illness in Aine-le-Chateau. Here she showed that behaviourial routines in the homes [habitual movements] were consistent with a notion of mental illness as a contagious disease. The routines sustained a physical and psychological distance between 'foster parents' and the 'mentally ill lodgers'. However, what the 'foster parents' told Jodelet about mental illness [informal linguistic communication] was consistent with modern medicine in rejecting ideas of contagion. The contrast between these two modes and mediums of representation is indicative of a complex, even contradictory core representation of mental illness sustaining the project of Aine-le-Chateau.

In summary we distinguish between (a) modes of representation—habitual behaviour, individual cognition, informal communication and formal communication—and (b) mediums of representation—movement, words, visual images and non-linguistic sounds. A study of the 'nation' as a representation might include many of the 16 combinations of modes and mediums: flags, folk music, anthems, stories of history, myths, dress codes such as the Scottish kilt, ceremonial rituals, a Royal wedding, and habitual behaviours such as the English 'stiff upper lip' or the Swiss enthusiasm for orderliness and sporadic yodelling!

RESEARCHING SOCIAL REPRESENTATIONS: AN IDEAL TYPE

These defining characteristics of social representations are relevant to the design and conduct of empirical research. We identify seven implications which together form an ideal type or paradigm for research on social representations. The term 'ideal type' is used explicitly to avoid any normative presumptions. All of the seven implications could not be expected in any one study. We see the value of the ideal type as allowing researchers to make informed choices, to assess more precisely the strengths and limitations of particular studies, and to identify social representation studies by 'family resemblance', either by common conceptual

origin or by design affinities. At the same time, as a general framework, it allows researchers to make comparisons with other research programmes in the social sciences.

Content and Process

First of all, we take it for granted that research on social representations will continue to foreground the comparative analysis of common sense, the contents of representations. Representations are functional for collective activity, their relevance to the social group lies in the content of the representation, less than in its form (Israel and Tajfel, 1972). A representation without content is an oxymoron. Furthermore, the forms of communication processes in groups constrain their contents. As seen in Moscovici's study the content is functional within particular social milieus where particular anchors and objectifications are privileged. The processes of diffusion, propagation and propaganda cultivate these content as either opinions, attitudes or stereotypes. It is through such a focus on contents that further conceptual developments will be realized, for example differentiating core and peripheral elements; the analysis of anchors in the process of naming, classification and free association; and the inventory of images, metaphors and behaviour patterns which objectify new issues and challenges.

Social Milieus, Natural Groups and Intimation

We have argued that social milieus are the carrier systems and the functional reference of representations. In our model of the emergence of meaning (see figure 2) a group is defined among other things by the existence of a common project. As such we must first distinguish between social milieus and taxonomic clusters. The taxonomic clusters or statistical aggregate is common in empirical research on attitudes, voting and consumption patterns. Such taxonomic clusters are constructed with objectified criteria such as income, age, sex, attitudinal profiles or consumption patterns. This leads to nominalisms such as 'yuppies', 'dinkies' or 'urban blues', clusters of people without a common project. We would not expect to find social representations in these types of clusters.

Secondly, in social milieus we distinguish strong and weak forms of grouping. In the strong form, the so called natural group is characterised by a common project and an awareness of the group's history: in other words a collective memory. Such natural groups are self-referential, for example church going Catholics are likely to call themselves 'Catholics'.

In the weaker form of grouping we observe an common trajectory, a latent or nascent project, but without necessarily a self-referential identity, for example

mothers bringing up young children, or people with a common pattern of mass media exposure. In many countries the mass media are effectively columnised in relation to world views. A particular mass media outlet may be produced by and serve a distinct social group, for example the socialist or Catholic press. But, more generally different mass media outlets cultivate particular positions on issues. Increasingly in late modern societies, audience segmentation is based on personal preferences, interests and enthusiasms which constitutes a weak form of social milieu, for example readers of particular newspapers, e.g. The Washington Post or LeMonde, or viewers of public service versus commercial television. Given the importance of the mass media [formal communication] in the circulation of knowledge and the cultivation of symbolic environments it must be assumed that this enables and constrains the contents of informal communication. It was the mass media that in many different ways introduced 'Dolly' to an international public, and in so doing set a variety of frames within which people discussed the issue.

Whether one takes the strong or the weak definition of social milieus, it raises the problem of segmentation: how do we specify appropriate social segments for the study of social representations? Consider Moscovici's study 'la psychanalyse'. What led to the identification of the urban-liberal, Catholic, and communist milieus as interesting segments of the French public in the 1950s? The question can only be answered with historical witness. We note that the segmentation refers to milieus of 'Weltanschauung'; each takes a different position towards psychoanalytic ideas and its model of the human psyche. The outcome of the study make the segmentation plausible ex-post facto. However, these segments might not have been relevant in Britain in the 1950s, nor might they be relevant in present day France.

Segmentation is an issue at the formative stage of research. We need the sociological imagination to identify that intersection between interesting issues, groups and projects—so called 'intimations' (Oakeshott, 1991)[4]. The traditional distinctions of social class, language, religion or urban-rural may still be relevant life worlds for particular issues. The new social movements originating in the 1960s, environmentalism or feminism, or the emerging culturalism in many societies may also be diagnostic. For international comparisons we may continue to consider 'political nations' as self-refgerential units. But, we also need to keep an eye on those taxonomic groupings which carry the potential for self-reference. Even the nominal 'yuppies' may set up a cooperative to organise themselves with committees and rules in the pursuit of common interests. In the flux of social life such groups may define a common project and become a natural group. Essentially we should look beyond the traditional forms of social segmentation and determine whether, for a particular object of representation there exist strongly or weakly defined social milieus that would offer possibilities for the comparative analysis of common sense.

Cultivation Studies Within Groups

The study of psychoanalysis in France shows how representations are cultivated in different communication systems of production, circulation and reception: this leads to another implication. We need to consider both informal (for example the conversation over a cappuccino in the local cafe), and formal communication arrangements (an academic journal, a newspaper, a newsletter or a WWW-page). Such outlets express different sender-receiver relationships which can be typified and compared. What are the producers' views of the audience, are they seen as citizens or consumers, as equals, or as a group to be patronised by the elite? And what is the audience's view of the producers, trust and confidence, or mistrust and suspicion? The focus of such an analysis, unlike some modern audience research, is not the range of possible receptions of a single media event or genre [e.g. a soap opera]. It is the differential cultivation of an issue among different groups, in which both the production, circulation and reception of messages is the problematic. In this sense the social milieu incorporates formalized circulation media. To this extent, we are less interested in the autonomy of audiences with respect to certain media messages, so-called resistant *decoding*, but in the active mobilisation of messages for the group project, a resistant *encoding* of a challenge at a particular time. This process generates a plurality of representations of an issue, which is the focus of social representation studies.

Whether these messages are ideological or emancipatory, attitudinal or merely offering an opinion depends on the context. Moscovici's typification of diffusion leading opinions, propagation forming attitudes, or propaganda fostering stereotypes, may still be relevant, but others may be empirically identified; for example forms of advertising conditioning awareness, or the training of practical knowledge.

Multi-method (Mode and Medium) Analysis

In established social milieus and natural groups we would expect to find several modes of representation. The greater the degree of institutionalisation the greater the significance of the formalized medium and the elaboration of different modes. Acknowledging this calls for a multi-method approach, simultaneously observing the different representational modes as well as mediums, and their consequences. In research this implies some combination of field observations for behaviourial habits, questionnaires, free associations or interviews to explore individual cognitions; group interviews for informal communication; and documents or mass media contents for formal communication.

Triangulation of these different data sources across modes and mediums is a central objective; not merely to achieve the parallax of different perpectives as suggested by Flick (1992), but to determine core and peripheral elements of a

representation, to map contradictions and consistencies, and to explore the functions of the representation across the different modes and mediums.

Time-structures and Longitudinal Data

The life cycle of social representations is somewhere between the elusiveness of the flow of consciousness and the 'longue duree' of mentalities (Braudel, 1958; Burguiere, 1983; Vovelle, 1990). Designs incorporating a temporal perspective are necessary to observe the changing structures and functions of a representation. Operationally this means repeating interviews and extending media and documentary analysis over several time-points. To describe the representations in different natural groups the design requires a comparative longitudinal analysis, which we capture in our image of the 'Toblerone pack'. Consider Graumann & Kruse's (1990) discussion on environmentalism and the changing representations of nature: their analysis suggests that representations have evolved from the natural world as 'infinite resource to be exploited' to the 'environment in need of protection' paralleled by the attribute 'sustainable' to the conception of development. Such an analysis could be extended to compare the trajectory of this representational change in different social milieus, e.g, the Green sentiment in more or less industrially advanced countries (Durant *et al.*, in press).

Realistically, this implies that studies of the 'social representation of X' take the character of a research programme rather than a single cross sectional study. While many studies of the core and peripheral elements in representations use cross-sectional, experimental procedures; a time dimension to this research would provide a complementary definition of core (stable elements) and periphery (variable elements).

Crossovers of Cultural Projects and Trajectories

Which situations and objects are likely to be productive for the study of representations? Moscovici (1976) notes that they emerge at times of challenge; they are part of the collective process of coping with a perceived threat. Hence, social representations are best studied when 'new' concerns arise for different groups. These are most likely to occur at the societal fault-lines, at the points in time and space where the paths of different groups are crossing. 'Crossing each other's path' means that something is emerging as an issue for the colliding groups. Different groups have different historical trajectories and goals. They may cross each other's path at particular times, not least in times of crisis and conflict when sensitivities are high. The origin of the concern is likley to be located in one of the groups involved. As one group puts an object, idea or problem into the world, so are there differential reactions and elaborations of

this issue by other groups. The issues may be the workings of the human psyche as in 'la psychanalyse'; mental illness (Jodelet, 1991; Rose, in print); health and illness (Herzlich, 1973); the atom and nuclear power (e.g. Weart, 1988), nature and environment (Graumann & Kruse, 1990), the individual (Markova *et al.*, 1998), computers (Sensales, 1990; Bauer, 1995), modern biotechnology and genome research (Durant, Hansen & Bauer, 1996; Gaskell *et al.*, 1997), or science in general (Bauer, 1998, and Bauer, in press).[5]

The Disinterested Research Attitude

Social representations are the common senses of social milieus, and typically we are interested in studying milieus which are not our own. This calls for an attitude towards the object of study which could best be characterised as 'live and let live', disinterested observation. In the course of the inquiry the researcher must step back from direct intervention in social affairs. This approach is a precondition for sensitivity to the other's perspective, which might otherwise be lost in the enthusiasm of the researcher's own mission.

By contrast, consider the linear model of communication and its overarching concern with strategic communication and message effectiveness. The difference between source intention and audience reception is attributed to audience resistance, channel problems, or mediator incompetence. Resistance needs to be controlled by the management of both messages and contexts. Here the concern is not one of studying the world as experienced by the audience, but rather with increasing the efficiency of the communicator's activity. This is the tradition of psychologically informed social engineering catering for the objective of managerial control.

The approach of the disinterested observer has an affinity with what the historical analysis was described as the context of melancholia (Lepenies, 1972). The melancholic, and those who think they are, find themselves in a position of observation and reflection with a (self)imposed action block. Abstaining from engagement is instrumental for increasing the sensitivity towards the world. While for social representation research this is a methodological choice; it may also be seen as a middle way between the post-modern chaos of over-signification and hyper-activity, and the strait jacket of methodological individualism.

This is not to suggest that the analysis of social representations of an object or an idea is without 'relevance'. There are many studies on societal issues which have led to recommendations for the amelioration of a social problem. Studies of representations of mental illness, or health and illness, of the environment, of the public sphere, of science and technology, and so on, identify entry points for constructive social intervention. We are proposing that the researcher of social representations should, in the course of the empirical inquiry, abstain from the tendencies of social engineering. In so doing they will solve the

apparent paradox that social intervention may be well served by the results obtained with this disinterested approach.

A BRIEF ILLUSTRATION: SOCIAL REPRESENTATION OF BIOTECHNOLOGY

In our research on modern biotechnology we are interested in the broader question of the relations between science, technology and the public. Over time public opinion has had an increasing weight in the equation of technological innovation, as the presumed equivalence of progress and technology has been called into question (e.g. Touraine, 1995). As new technologies are developed, people tend to position themselves from the positive to the negative in relation to new ideas and innovations. In our model, we consider representations as the foundations for these positions. In this sense representations are both a condition and a consequence of a new technology, a process of *double accommodation* occurs: sometimes the public accommodates to science and technology, sometimes science and technology accommodates to the public.

In observing these processes of double accommodation we distinguish three research agendas. First, mapping public reactions to the challenge of biotechnology; the different common senses about this new technology, the varied images of 'the gene' and its potentialities. Secondly, mapping the responses of the 'challenger' to the public's counter-challenge, for example adjustments of the industries's expectations, and of their research and implementation strategies. Thirdly, investigating institutional learning whereby new forms of mediation and regulation may be introduced to address public concerns about the absolute autonomy of the scientific-industrial process (Bauer, 1995; Durant, Bauer & Gaskell, 1998).

The paradigm for research on social representations has served as a standard of aspiration and as a programmatic blueprint to coordinate the teams of researchers in twelve countries. With regard to contents and processes we are analysing and integrating media contents, themes in individual and group interviews, and the structure of beliefs as evidenced by survey data and free associations. With regards to segmentation we focus on cross-national comparisons, and, in different countries, social milieus defined in terms of self-referential groups (environmentalists, religious), intimations (gender or mothers with young children) or patterns of media consumption (readers of particular newspapers). On cultivation we comparatively analyse media outputs in different countries relating these to public perceptions of biotechnology. We consider three modes and two mediums of representation: individual cognitions in the form of free associations; informal communication in focus group discussions; and formal communication in policy documents and media coverage. Words and visual imagery as the mediums of representation. The design is longitudinal and incorporates the analysis of twenty-five years of media coverage and policy

making. Modern biotechnology was selected as the issue for this research, because of contemporary significance. It has been called the technology of the 21st century, variously described in utopian and dystopian terms, and has led to active mobilisation of supporters and opponents on various issues. Some milieus, in our case European countries, readily endorse the new developments, while others experience great unease and controversy over such issues as novel foods and crops, cloning technology, transgenic animals, and the resurfacing of the nature/nurture controversy and even eugenics. Our objective is to understand comparatively the different representations underlying positions vis-a-vis modern biotechnology, the responses of the scientific-industrial complex to evolving representations, and the recent institutionalisation of bioethics to complement the existing regulatory provisions of risk assessment. In this way we can document how and under what conditions representations enable, constrain, or change the trajectory of the new technology.

CONCLUSION

There is now a growing body of theoretical discussion and empirical research on social representations. The objective of the programme of research is to understand the structures and functions of common sense, the production of hybrid forms of local knowledge in response to the challenges posed by new developments in society. These are phenomena of central importance in everyday life and as such, a suitable and legitimate focus for social psychology.

In this paper we discuss various considerations on the nature of representations. With the human potential for reflexivity the distinction between the representation and the object emerges. It is the circumstances of life that determine whether this distinction is made, and what is made of it. We present a specification of the basic unit of analysis of social representation. This is the Subject-Object-Project-Subject relation, SOPS, a triangle of mediation with a time dimension, illustrated in image of the 'Toblerone model'. This unit of analysis leads to distinctions between modes (behaviourial habits, individual cognition, informal and formal communication) and mediums of representation (movement, words, visual images or non-linguistic sounds) within social milieus. Abstaining from the iconoclastic suspicion, representations are not viewed as false, weak or biased, or in any other way deficient. But rather they have a functionality in relation to the projects of social milieus. Thus, depending on the context, identities, attitudes, causal attributions or ideology should be recognised as different functions of a specific structure of representation.

We propose an operational definition of a 'social representation' as the comparison of communication systems in four ways: the content structures, the typified processes of cultivation, the social-psychological functions, and the segmentation of social milieus.

Out of this discussion we formulate seven implications for research on social representations: content and process; social milieus, natural groups and intimation; cultivation studies within milieus; multi-method analysis; longitudinal designs at the crossover of cultural projects and trajectories; and the disinterested ethos in researching the content, structure and functions of representations. These implications constitute an ideal type procedure: a broad paradigm addressing concepts, key distinctions and methodological choices, rather than privileging a particular data type or statistical procedures. We recognise that no one study, least of all our own research, will fulfill all these 'paradigmatic' criteria. The value of the paradigm is to guide the design of research, to establish a programme of normal science, to foster a common communication context, to enable comparisons and assessments of the complementary value of single studies, and to identify new areas for research. In other words a Gestalt for progress in research on social representations.

Martin W. Bauer and George Gaskell
Department of Social Psychology and Methodology Institute
London School of Economics and Political Science
London WC2A 2AE
UK

Acknowledgements We thank Gerard Duveen, Thomas Luckmann, Sandra Jovchelovitch, Serge Moscovici, Wolfgang Wagner and three anonymous reviewers for their comments on earlier drafts of this paper. Address e-mail correspondence: Bauer@sc.ac.uk

NOTES

[1] This study has been translated into Italian, Spanish and Portuguese, but for unknown reasons never into English or German. This constitutes a problem for the reception of the theory of social representations in particular in the Anglo-Saxon world; the original formulation of the theory and the empirical study is available only through the filter of secondary accounts and commentaries. For example, the authors and others are convinced that this situation led to the displacement of the mass media component from the discussions on how to define and to study 'social representations', and to a restrictive search for a statistical operationalisation akin to the methodological individualism of attitude measurement.

[2] In this sense social representations are conservative, but paradoxically they may serve as a stimulus for innovation. The resistance to psychoanalysis of the three French milieus results in different representations of it, which in turn may constitute a challenge to the psychoanalytic movement. In the 2nd edition of 'la psychanalyse' Moscovici (1976, p. 492) observes that the communist representation had moved from propaganda to propagation; in this sense the resistance itself evolved. There is, however, no discussion how the psychoanalytic movement in France noticed the counter-challenge and accom-

modated to it. We consider the study of this effect of social representations as the logical extension of the scope of the theory.

[3] In passing it is interesting that the three elements of a representation involve different prefixes to the same Latin word-stem 'ject' ['iactus, prefix+iectus':thrown]. In the context of representations this captures the idea of movement and stability. The three prefixes denote positional adverbs: 'sub-' for under or close to, 'ob-' for confronting and facing, and 'pro-' for directional and temporal onwards.

[4] The term 'intimation' is a notion in political science around the issues of 'rational choice'. We apply it to the problem of segmentation to highlight that there is no algorithmic solution to social segmentation. The term highlights the importance of sensibility, recognition and historical and sociological judgement in solving the segmentation problem. Researchers find themselves witnessing past and current historical movements; no abstract principles, for example the notion of social class or statistical cluster analysis, are suitable for the segmentation of social milieus across all contexts.

[5] For a review of recent research on social representations on gender, the public, madness, the individual, see Wagner *et al.* (1999).

REFERENCES

ABRIC, J.C. (1994). (ed.) *Pratiques sociales et representations*, Paris: PUF.

ACKERMANN, W. & DULONG, R. (1971). Popularisation of science for adults. *Social Science Information*, **11**(1), 113–148.

ALLANSDOTTIR, A., JOVCHELOVITCH, S. & STATHOPOULOU, A. (1993). Social representations: the versatility of a concept. Papers on Social representations, **2**(2), 75–78.

BANGERTER, A. (1995). Rethinking the relation between science and common sense. *Papers on Social Representations*, **4**, 61–78.

BAUER, M. (1994). Popular science as 'cultural immunisation'. The resistance function of social representations. In P. Guareschi and S. Jovchelovitch (eds.), *Texts in Social Representations*. Rio de Janeiro: Vozes, pp. 229–260.

BAUER, M. (1995). Towards a functional analysis of resistance. In M. Bauer (ed.) *Resistance to new technology – nulear power, information technology, biotechnology*. Cambridge: Cambridge University Press, pp. 393–418.

BAUER, M. (1998). The medicalisation of science news – from the "rocket-scalpel" to the "gene-meteorite" complex. *Social Science Information*, **37**, 731–751.

BAUER, M. (in print). 'Science in the media' as cultural indicator: complementing survey indicators with media analysis. In M. Dierkes and C. von Grote (eds.) *Between understanding and trust: the public, science and technology*. Reading: Harwood Academics Publisher.

BILLIG, M. (1988). Social representation, anchoring and objectification: a rhetorical analysis. *Social Behaviour*, **3**, 1–16.

BLUMENBERG, H. (1990). Work on myth, Cambridge, Mass, MIT Press [translated by R.M. Wallace from the German original, 1979].

BRAUDEL, F. (1958). La longue duree, Annales E.S.C., **4**, 725–753.

BREAKWELL, G. & CANTER, D. (1993). (Eds.) *Empirical approaches to the study of Social Representations*. Oxford: Clarendon Press.

BURGUIERE, A. (1983). La notion de 'mentalites' chez Marc Bloch et Lucien Febvre: deux conceptions, deus affiliations. *Revue de Synthese*, **111**, 333–348.

CRANACH, M v. (1998). On the knowledge of social systems. In U. Flick (Ed.), *Psychology of the social*, Cambridge: Cambrige University Press, pp. 15–40.

CRANACH, M v. (1996). Toward a theory of the acting group. In E.H. Witte and J.H. Davis (eds.), *Understanding group behaviour. Small group processes and interpersonal relations*. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 147–187.

CRONE, P. (1980). Islam, Judeo-Christianity and Byzantine iconoclasm. *Jerusalem Studies in Arabic and Islam*, **2**, 59–95.

DAROSA, A.M. (1998). How to sell pullovers by promoting discussions on social issues: the role of advertising in activating and diffusing controversial representation. In V. Rigas (ed.), *Social representations and contemporary social issues*. Athens: Ellinika Grammata, pp. 228–277.

DOISE, W., CLEMENCE, A. & LORENZI-CIOLDI, F. (1993). *The quantitative analysis of social representations*. Hemel Hempstead: Harvester Wheatsheaf.

DORNAN, C. (1990). Some problems in conceptualizing the issue of 'science in the media'. *Critical Studies in Mass Communication*, **7**, 48–71.

DURANT, J., HANSEN, A. & BAUER, M. (1996). Public understanding of new genetics. In Marteau and Richards (eds.), *The troubled helix – social and psychological consequences of the new human genetics*. Cambridge: Cambrige University Press, pp. 235–248.

DURANT, J., BAUER, M.W., GASKELL, G. (1998). (eds.) Biotechnology in the public sphere: A European source book. London: Science Museum.

DURANT, J., BAUER, M., GASKELL, G., MIDDEN, C., LIAKOPOULOS, M. and SCHOTTEN, L. (in print). Two cultures of public understanding of science and technology in Europe. In M. Dierkes and C. von Grote (eds.), *Between understanding and trust: the public, science and technology*. Reading: Harwood Academics Publisher.

DUVEEN, G. (1998). The psychosocial production of ideas: social representations and psychologic. *Culture and Psychology*, **4**, 455–472.

EIRE, C.M.N. (1986). *War against the idols. The reformation of worship from Erasmus to Calvin*. Cambridge: Cambrige University Press.

FARR, R.M. (1987). Social Representations: A French tradition of research. *Journal for the Theory of Social Behaviour*, **17**, 343–370.

FARR, R.M. (1993). Common sense, science and social representations. *Public Undestanding of Science*, **2**, 189–205.

FLECK, L. (1935). *Entstehung und Entwicklung einer wissenschaftlichen Tatsache*. Frankfurt: Suhrkamp, 1994 edition.

FLICK, U. (1992). Triangulation revisited: strategy of validation or alternative? *Journal for the Theory of Social Behaviour*, **22**(2), 175–197.

FLICK, U. (1998). (Ed) *The psychology of the social*. Cambridge: Cambrige University Press.

GASKELL, G. (1994). Survey research and consenuality: statistical and natural groups. *Papers on Social Representations*, pp. 29–32

GASKELL, G. & FRASER, C. (1990). The social psychological study of widespread beliefs. In C. Fraser and G. Gaskell (eds.), *The social psychological of widespread beliefs*. Oxford: Clarendon.

GASKELL, G., BAUER, M. & DURANT, J. *et al.* (1997). Europe ambivalent on biotechnology. *Nature*, **387**, 26 June, 845–847.

GUARESCHI, P. (1996). A ideologia: um terreno minado. *Psychologia Social e Sociedade*, **8**(2), 82–94.

HALBERTAL, M. & MARGALIT, A. (1992). *Idolatry*. Harvard, HUP.

HARRE, R. (1984). Some reflections on the concept of 'Social Representation'. *Social Research*, **51**, 927–938.

HASTORF, A.H. & CANTRIL, H. (1954). They saw a game: a case study. *Journal of Abnormal and Social Psychology*, **49**, 129–134.

HERZLICH, C. (1973). *Health and Illness*. London: Academic Press.

HILGARTNER, S. (1990). The dominant view of popularization: conceptual problems, political uses. *Social Studies of Science*, **20**, 519–39.

IRWIN, A. & WYNNE, B. (1996). (Eds.) *Misunderstanding science? The public reconstruction of science and technology*. Cambridge: Cambrige University Press.

ISRAEL, J. & TAJFEL, H. (1972). (Eds.) *The context of social psychology*. London: Academic Press.

JODELET, D. (1991). *Madness and social representations*. Hemel Hempstead: Harvester Wheatsheaf.

JOVCHELOVITCH, S. (1996). In defense of representation. *Journal for the Theory of Social Behaviour*, **26**, 121–136.

JURDANT, B. (1993). Popularization of science as the autobiography of science. *Public Understanding of Science*, **2**(4), 365–374.

LAHLOU, S. (1998). Functional aspects of social representations. *Paper to the New York Conference on Social Representations*, CUNY. Oct 9–10, 1998.

LEPENIES, W. (1972). *Melancholie und Gesellschaft*. Frankfurt: Suhrkamp.

LEWIN, K. (1952). Behaviour and development as a function of the total situation. In *Field theory in social science*. London: Tavistock Publications, pp. 238–304.

LUCKMANN, T. (1995). Der kommunikative Aufbau der sozialen Welt und der Sozialwissenschaften. *Annali di Sociologia*, **11**, 45–71.

LYOTARD, J.F. (1994). *The post-modern condition: a report on knowledge*. Manchester: Manchester University Press [original in French, 1979].

MARKOVA, I., MOODIE, E., FARR, R.M., DROZDA-SENSKOWSKA, E., PLICHTOVA, J. EROS, F. GERVAIS, M.C., HOFFMANNOVA, J. & MULLEROVA, O. (1998). Social representations of the individual: a post-communist perspective. *European Journal of Social Psychology*, **28**, 797–892.

MARTEAU, T. & RICHARDS, M. (1996). (Eds.) The troubled helix. Social and psychological implications of new human genetics. Cambridge: Cambrige University Press.

MOSCOVICI, S. (1976). *La psychanalyse, son image et son public*. Paris: PUF, 2nd revised edition (first edition, 1961).

MOSCOVICI, S. (1981). On social representations. In J.P. Forgas (Ed.), *Social cognition: perspectives on everyday understanding*. London: Academic Press, pp. 181–209.

MOSCOVICI, S. (1984). The phenomenon of social representations. In R. Farr and S. Moscovici (Eds.), *Social Representations*. Cambridge: Cambridge University Press, pp. 3–70.

MOSCOVICI, S. (1992). The psychology of scientific myths. In M. von Cranach, W. Doise and G. Mugny (eds.), *Social representations and the social basis of knowledge*. Toronto: Bern, pp, 3–9.

OAKESHOTT, M.J. (1991). *Rationalism in Politics* [new and expanded edition], Indianapolis, Liberty Press [original 1962].

PICKERING, A. (1992). (Ed.) *Science as practice and culture*. Chicago: Cambrige University Press.

PEREIRA DE SA. (1996). Determining the central nucleus of social representations. *LSE Methodology Institute – Papers in Social Research Methods*/Qualitative Series no 2.

ROSE, D. (in press). Television and community care. *Journal of Community and Applied Social Psychology*, **?**, ??.

ROQUEPLO, P. (1974). *Le partage du savoir*. Paris: Seuil.

SENSALES, G. (1990). *L'informatica nella stampa italiana*. Milano: Franco Angeli.

SMITH, C.W. (1997). The ontological status of ideation: a continuing issue. *Journal for the Theory of Social Behaviour*, **27**, 129–137.

THOMMEN, B., VON CRANACH, M. AMMANN, A. (1992). The organisation of individual action through social representations: a comparative study of two therapeutic schools. In M. von Cranach, W. Doise, G. Mugny (eds.), *Social representations and the social basis of knowledge*. Lewiston: Hogrefe & Huber, pp. 184–201.

VANELTEREN, M. (1990). Die Sozialpsychologie Lewins, marxistische Soziologie und Geschichte. Das Scheitern eines gemainsamen Projektes von Kurt Lewin und Karl Korsch, *Psychologie und Geschichte*, **2**, 1–18.

VOVELLE, M. (1990). Ideologies and mentalities. Chicago: Cambrige University Press.
TOURAINE, A. (1995). The crisis of 'Progress'. In M. Bauer (ed.), Resistance to new technology. Nuclear power, information technology, biotechnology. Cambridge: Cambrige University Press, pp. 45–56.
TUOMELA, R. (1995). *The importance of us. A philosophical study of basic social notions*. Stanford: Stanford University Press.
WAGNER, W. (1996). Queries about social representations and construction. *Journal for the Theory of Social Behaviour*, **26**(2), 95–120.
WAGNER, W. (1997). Word association in questionnaires. A practical guide to design and analysis. *LSE Methodology Institute – Papers in Social Research Methods/Qualitative Series* no 3.
WAGNER, W., DUVEEN, G., FARR, R., JOVCHELOVITCH, S., LORENZI-CIOLDI, F. MARKOVA, I. & ROSE, D. (1999). Theory and methods of social representations, *Asian Journal of Social Psychology*, April.
WEART, S.R. (1988). *Nuclear fear: a history of images*. Cambridge Mass: Harvard University Press.
WYNNE, B. (1995). Public understanding of science. In S. Jasanoff, G.E. Markle, J.C. Peterson and T. Pinch (Eds.), *Handbook of science and technology studies*. Beverly Hills: Sage Publications.